	Application No.	Applicant(s)
Notice of Allowability	10/815,253	PEH, THOMAS
	Examiner	**Art Unit**	
	Charles D. Adams	2164	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment dated 5 December 2006*.

2. ☒ The allowed claim(s) is/are *1-5, 7-9 and 21-28*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

       1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
       Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08),
    Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
    of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413),
    Paper No./Mail Date *3-2-07* .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

CHARLES RONES
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Remarks

1.   In response to communications filed on 5 December 2006, claims 1, 10, 14-15

are amended, claims 6 are cancelled, and claims 19-20 are added per applicant's

request. Claims 1-5 and 6-20 are pending in the application.

Examiner's Amendment

2.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

        Authorization for this examiner's amendment was given in a telephone interview

with Joseph Juliano on 2 March 2007.

3.   **In Claims:**

        Please replace claims 1-5 and 7-9 with amended claims 1-5 and 7-9, cancel

claims 10-20, and add new claims 21-28, as listed below:

        1. (Currently Amended) A method of executing a query <u>on a computer</u> for at

least one document similar to a specified document, the method comprising:

                receiving the query;

forming a reduced query document based on ranks of terms in the specified

document, the forming comprising:

calculating a rank of at least one term in the specified query document,

calculating a square of each rank,

calculating a normalized rank for each square,

sorting a list of <u>said</u> normalized ranks ~~including the normalized rank~~,

calculating a partial sum for each normalized rank in the list of normalized

ranks, and

including, in the reduced query document, terms corresponding to a partial

sum above a threshold value;

generating a modified query based on the query and the reduced query

document;

executing the modified query on a data repository to generate a set of results;

and

providing a result <u>from said generated set of results</u> to a user interface.

2.   (Currently Amended)   [[A]] <u>The</u> method in accordance with claim 1, wherein

the result comprises a document that is similar to the specified document.

3.   (Currently Amended)   [[A]] <u>The</u> method in accordance with claim 1, wherein

the result comprises a list of references to documents that are similar to the specified

document.

4.   (Currently Amended)   [[A]] The method in accordance with claim 1, wherein

the result indicates that no similar document was found in the data repository.

5.   (Currently Amended)   [[A]] The method in accordance with claim 1, wherein

forming the reduced query document based on ranks of terms in the specified document

excludes terms that are less selective.

6.   (Canceled)

7.   (Currently Amended)   [[A]] The method in accordance with claim 1, wherein

the data repository is modeled in accordance with a vector space model and executing

the modified query comprises calculating the similarity of the reduced query document

with a comparison document in the data repository in accordance with the a function $Q \cdot D / |Q| * |D|$ where Q is the reduced query document, D is the comparison

document, $Q \cdot D$ is a scalar product of column vectors corresponding to each document

such that each column is a vector including ranks of terms in the documents, and $|Q| *$

$|D|$ is a normalization factor.

8.   (Currently Amended)   [[A]] The method in accordance with claim 7, wherein

the normalization factor is the product of the norms of the column vectors corresponding

to each document calculated in accordance with the an equation $sqrt(q1^2 + \ldots + qT^2)$

* sqrt(d1^2 + ... + dT^2) where sqrt signifies square root, q1 through qT are ranks of

terms in the reduced query document, d1 through dT are ranks of terms in the

comparison document, and T is the number of terms in an index of document vectors

generated in accordance with the vector space model of the data repository.

9.   (Currently Amended)   [[A]] The method in accordance with claim 7, wherein

the scalar product of the column vectors is calculated in accordance with the an

equation (q1.d1 + q2.d2 + ... + qT.dT) where q1 through qT are ranks of terms in the

reduced query document, d1 through dT are ranks of terms in the comparison

document, and T is the number of terms in an index of document vectors generated in

accordance with the vector space model of the data repository.

10-20. (Canceled)

21   (New) A computer-readable storage media embodying instructions to cause data

processor to perform operations comprising:

        receiving a query for at least one document similar to a specified document;

        forming a reduced query document based on ranks of terms in the specified

document, the forming comprising:

                calculating a rank of at least one term in the specified query document,

                calculating a square of each rank,

                calculating a normalized rank for each square,

sorting a list of said normalized ranks,

calculating a partial sum for each normalized rank in the list of normalized

ranks, and

including, in the reduced query document, terms corresponding to a partial

sum above a threshold value;

generating a modified query based on the query and the reduced query

document;

executing the modified query on a data repository to generate a set of results;

and

providing a result from said generated set of results to a user interface.

22.   (New) The computer-readable media in accordance with claim 21, wherein the

result comprises a document that is similar to the specified document.

23.   (New) The computer-readable media in accordance with claim 21, wherein the

result comprises a list of references to documents that are similar to the specified

document.

24.   (New) The computer-readable media in accordance with claim 21, wherein the

result indicates that no similar document was found in the data repository.

25.   (New) The computer-readable media in accordance with claim 21, wherein

forming the reduced query document based on ranks of terms in the specified document

excludes terms that are less selective.

26.   (New) The computer-readable media in accordance with claim 21, wherein the

data repository is modeled in accordance with a vector space model and executing the

modified query comprises calculating the similarity of the reduced query document with

a comparison document in the data repository in accordance with a function $Q \cdot D \; / \; |\,Q$

$|\,*\,|\,D\,|$ where Q is the reduced query document, D is the comparison document, $Q \cdot D$

is a scalar product of column vectors corresponding to each document such that each

column is a vector including ranks of terms in the documents, and $|\,Q\,|\,*\,|\,D\,|$ is a

normalization factor.

27.   (New) The computer-readable media in accordance with claim 26, wherein the

normalization factor is the product of the norms of the column vectors corresponding to

each document calculated in accordance with an equation $sqrt(q1^2 + \ldots + qT^2) \; *$

$sqrt(d1^2 + \ldots + dT^2)$ where sqrt signifies square root, q1 through qT are ranks of

terms in the reduced query document, d1 through dT are ranks of terms in the

comparison document, and T is the number of terms in an index of document vectors

generated in accordance with the vector space model of the data repository.

28.   (New) The computer-readable media in accordance with claim 26, wherein the

scalar product of the column vectors is calculated in accordance with an equation

$(q_1.d_1 + q_2.d_2 + ... + q_T.d_T)$ where q_1 through q_T are ranks of terms in the reduced

query document, d_1 through d_T are ranks of terms in the comparison document, and T

is the number of terms in an index of document vectors generated in accordance with

the vector space model of the data repository.

Allowable Subject Matter

4.   Claims 1-5, 7-9 and 21-28 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record, alone or in combination, does not teach or fairly suggest

the combination of steps as recited in independent claims 1 and 21, wherein the

limitations "calculating a rank of at least one term in the specified query document;

calculating a square of each rank; calculating a normalized rank for each square; sorting

a list of said normalized ranks; calculating a partial sum for each normalized rank in the

list of normalized ranks; and including, in the reduced query document, terms

corresponding to a partial sum above a threshold value" are taught.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Charles D. Adams whose telephone number is (571)

272-3938. The examiner can normally be reached on 8:30 AM - 5:00 PM, M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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CHARLES RONES
SUPERVISORY PATENT EXAMINER